



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,452	01/27/2004	Takahiko Murata	60188-757	8706

7590 03/22/2007  
Jack Q. Lever, Jr.  
McDERMOTT, WILL & EMERY  
600 Thirteenth Street, N.W.  
Washington, DC 20005-3096

EXAMINER
----------

LE, TUAN H

ART UNIT	PAPER NUMBER
----------	--------------

2622

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/764,452	<b>Applicant(s)</b> MURATA ET AL.	
	<b>Examiner</b> Tuan H. Le	<b>Art Unit</b> 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by lizuka**

**(U.S. Pat. 6,686,960 B2).**

Regarding **claim 1**, lizuka discloses a solid state imaging apparatus (see lizuka, Fig. 23) which includes a plurality of pixels two-dimensionally arranged in the row direction and the column direction and in which every two of the plurality of pixels in the row direction or the column direction that are adjacent to each other include color filters of different colors, (see lizuka, Fig. 6), respectively,

the apparatus comprising a plurality of signal mixture means (block), each of the plurality of signal mixture means being provided for each same-row and same-color pixel group consisting of ones of the plurality of pixels which are included in a pixel mixture unit to be a subject of pixel signal mixture, which are located in the same row,

Art Unit: 2622

and which include color filters of the same color, (see lizuka, Fig. 6 and column 9 lines 2-4, wherein image sensor is divided into blocks)

wherein each of the plurality of signal mixture means stores pixel signals from the pixels included in the same-row and same-color pixel group and mixes the pixel signals together, (see lizuka, Fig. 6 and column 9 lines 5-46).

**Claim 3 is rejected under 35 U.S.C. 102(e) as being anticipated by the prior art admitted by applicant (PAAA) in Figure 8.**

Regarding claim 3, PAAA discloses a solid state imaging apparatus , which includes a plurality of pixels two-dimensionally arranged in the row direction and the column direction and including respective color filters and in which colors of the color filters are two-dimensionally arranged so that colors in two rows or two columns as a unit repeatedly appear, (see Fig. 8 and paragraph [0004])

the apparatus comprising arranging means (block ) for grouping the plurality of pixels into pixel mixture units each of which consists of  $p \times q$  pixels included in an area of  $p$  rows (where  $p=4n+1$ ,  $n$  is a natural number) and  $q$  columns (where  $q=4m+1$ ,  $m$  is a natural number), setting pixels constituting each of the pixel mixture units and located in even-numbered rows and columns from a center pixel at a center in the row and column directions so as to include color filters of the same color, (block 101 is used wherein  $3 \times 3$  sized is used,  $G$  is the center), and two-dimensionally arranging the pixel mixture units so that each of the pixel mixture units is shifted by  $(p+1)/2$  pixels in the row direction and by  $(q+1)/2$  pixels in the column direction and each of the pixel mixture

units subsequently overlaps with associated ones of the pixel mixture units, (shift 101 by two rows and two columns),

wherein signal mixture means (addition of same color) for mixing pixel signals from ones of the pixels constituting each of the pixel mixture units which include color filters of the same color is provided in each of the pixel mixture units, (see paragraph [0005] and Fig. 9).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over lizuka (U.S. Pat. 6,686,960) and further in view of Hashimoto et al (U.S. Pat. 6,992,714).**

As for claim 2, lizuka discloses signal mixture means which includes the horizontal register for storing signal charges in a row, (see lizuka, column 9 lines 30-35). However, lizuka does not disclose said each signal mixture means includes a plurality of capacitors which are provided so that the number of the plurality of capacitors is the same as that of the same-row and same-color pixel groups included in the pixel mixture unit and a plurality of switches for guiding respective signals output from the plurality of capacitors to a shared output line.

Art Unit: 2622

On the other hand, Hashimoto et al discloses horizontal shift register, (see Hashimoto et al, Fig. 3), which includes capacitors which are provided so that the number of the plurality of capacitors is the same as that of the same-row and same-color pixel groups included in the pixel mixture unit and a plurality of switches for guiding respective signals output from the plurality of capacitors to a shared output line, (see Hashimoto et al, Fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the capacitors and switches as described by Hashimoto et al into the signal mixture means as described by Iizuka in order to read signal on the block by block basis because such implementation eliminates power consumption increase and signal degradation by noise, (see Hashimoto et al, column 1 lines 32-44).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoshida (U. S. Pat. 6,930,716) discloses a color imaging apparatus includes a CCD imaging device having interline transfer charge transfer paths adapted for interlaced reading and a Bayer-arranged color filter.

Morillon (U.S. Pat. 4,553,159) discloses a color television camera comprising a photosensitive matrix covered by a matrix filter. The filter is designed so that each register only stores one color. The arrangement is such that the green color elements are aligned on vertical bands.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Le whose telephone number is (571) 270-1130. The examiner can normally be reached on M-Th 7:30-5:00 F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tuan Le  
March 19, 2007.



DAVID OMETZ  
SUPERVISORY PATENT EXAMINER